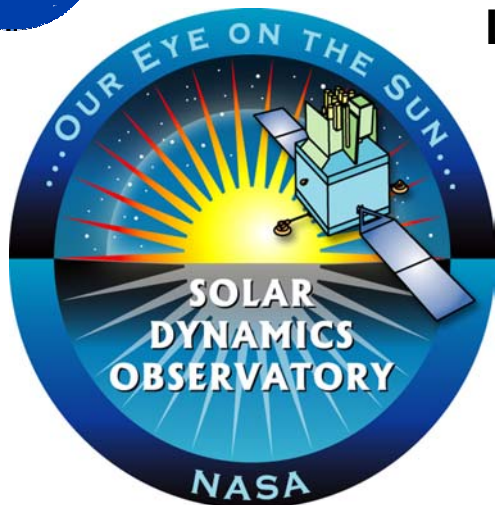


# Solar Dynamics Observatory (SDO)

First Space Weather Research Network Mission in the  
Living With A Star (LWS) Program



## Mission Specs:

- April 2008 launch: GTO to GEO
- Inclined Geosynchronous Orbit (semiannual eclipse seasons)
- 3-axis stabilized spacecraft
- Data transmission: continuous high rate data stream ~150 Mbps compressed data at Ka-Band
- Single ground station
- Mission development and management at GSFC

## Key Spacecraft Technologies

- Ethernet Chipset
- Ka-Band Transmitter
- Active Pixel Star Tracker

## Mission Science Objectives

The primary goal of the SDO mission is to understand, driving towards a predictive capability, the solar variations that influence life on Earth and humanity's technological systems by determining

- *How the Sun's magnetic field is generated and structured*
- *How this stored magnetic energy is converted and released into the heliosphere and geospace in the form of solar wind, energetic particles, and variations in the solar irradiance.*

## Science Investigations

### • **Helioseismic and Magnetic Imager (HMI)**

PI Institution: Stanford University

- *Images the Sun's helioseismic, longitudinal and vector magnetic fields to understand the Sun's interior and magnetic activity*

### • **EUV Variability Experiment (EVE)**

PI Institution: University of Colorado

- *Measures the solar extreme ultraviolet (EUV) spectral irradiance to understand variations on the timescales which influence Earth's climate and near-Earth space*

### • **Atmospheric Imaging Assembly (AIA)**

PI Institution: Lockheed Martin Missiles & Space Advanced Technology Center

- *Images the solar atmosphere in multiple wavelengths to link changes to surface & interior changes*